

CLAIMS

What is claimed is:

1. A method comprising:

accessing a data block, the data block one of a plurality of data blocks mapped to a physical sector, each data block containing a user data segment and an associated IMD segment, each IMD segment including a version identifier IMD and at least one other type of IMD; and

validating the data block by verifying the version identifier IMD and at least one of the at least one other type of IMD.
2. The method of claim 1, wherein the at least one other type of IMD comprises checksum IMD.
3. The method of claim 1, wherein the at least one other type of IMD comprises logical block address IMD.
4. The method of claim 1, wherein the at least one other type of IMD comprises checksum IMD and logical block address IMD.
5. The method of claim 1 wherein verifying the version identifier IMD includes determining that a first version identifier stored within the data block matches a second version identifier stored outside of the data block.
6. The method of claim 2 wherein verifying the checksum IMD includes determining that a checksum stored within the data block matches a checksum obtained

by applying a process to a user data contained within the user data segment of the data block, the process being a same process used to create the checksum IMD.

7. The method of claim 3 wherein verifying the logical block address IMD includes determining that a logical block address stored within the data block matches a logical block address used to access the data block.

8. The method of claim 1 wherein the at least one other type of IMD to be verified is selected based upon an expected type of data corruption.

9. The method of claim 8 wherein the at least one other type of IMD to be verified is LBA IMD and the expected type of data corruption is a misdirected memory access operation.

10. The method of claim 8 wherein the at least one other type of IMD to be verified is checksum IMD and the expected type of data corruption is an erroneous WRITE operation.

11. A machine-readable medium containing instructions which, when executed by a processing system, cause the processing system to perform a method, the method comprising:

accessing a data block, the data block one of a plurality of data blocks mapped to a physical sector, each data block containing a user data segment and an associated IMD segment, each IMD segment including a version identifier IMD and at least one other type of IMD; and

validating the data block by verifying the version identifier IMD and at least one of the at least one other type of IMD.

12. The machine-readable medium of claim 11, wherein the at least one other type of IMD comprises checksum IMD.

13. The machine-readable medium of claim 11, wherein the at least one other type of IMD comprises logical block address IMD.

14. The machine-readable medium of claim 11, wherein the at least one other type of IMD comprises checksum IMD and logical block address IMD.

15. The machine-readable medium of claim 11 wherein verifying the version identifier IMD includes determining that a first version identifier stored within the data block matches a second version identifier stored outside of the data block.

16. The machine-readable medium of claim 12 wherein verifying the checksum IMD includes determining that a checksum stored within the data block matches a checksum obtained by applying a process to a user data contained within the user data segment of the data block, the process being a same process used to create the checksum IMD.

17. The machine-readable medium of claim 13 wherein verifying the logical block address IMD includes determining that a logical block address stored within the data block matches a logical block address used to access the data block.

18. The machine-readable medium of claim 11 wherein the at least one other type of IMD to be verified is selected based upon an expected type of data corruption.

19. The machine-readable medium of claim 18 wherein the at least one other type of IMD to be verified is LBA IMD and the expected type of data corruption is a misdirected memory access operation.
20. The machine-readable medium of claim 18 wherein the at least one other type of IMD to be verified is checksum IMD and the expected type of data corruption is an erroneous WRITE operation.
21. A data storage system comprising:
- a storage media;
 - a processing system; and
 - a memory, coupled to the processing system, characterized in that the memory has stored therein instructions which, when executed by the processing system, cause the processing system to a) access a data block, the data block one of a plurality of data blocks mapped to a physical sector, each data block containing a user data segment and an associated IMD segment, each IMD segment including a version identifier IMD and at least one other type of IMD, and b) validate the data block by verifying the version identifier IMD and at least one of the at least one other type of IMD.
22. The data storage system of claim 21, wherein the at least one other type of IMD comprises checksum IMD.
23. The data storage system of claim 21, wherein the at least one other type of IMD comprises logical block address IMD.

24. The data storage system of claim 21, wherein the at least one other type of IMD comprises checksum IMD and logical block address IMD.
25. The data storage system of claim 21 wherein verifying the version identifier IMD includes determining that a first version identifier stored within the data block matches a second version identifier stored outside of the data block.
26. The data storage system of claim 22 wherein verifying the checksum IMD includes determining that a checksum stored within the data block matches a checksum obtained by applying a process to a user data contained within the user data segment of the data block, the process being a same process used to create the checksum IMD.
27. The data storage system of claim 23 wherein verifying the logical block address IMD includes determining that a logical block address stored within the data block matches a logical block address used to access the data block.
28. The data storage system of claim 21 wherein the at least one other type of IMD to be verified is selected based upon an expected type of data corruption.
29. The data storage system of claim 28 wherein the at least one other type of IMD to be verified is LBA IMD and the expected type of data corruption is a misdirected memory access operation.
30. The data storage system of claim 28 wherein the at least one other type of IMD to be verified is checksum IMD and the expected type of data corruption is an erroneous WRITE operation.